

WHAT IS CLAIMED IS:

1. A method for the continuous casting of sheets of an amorphous material comprising:

5 providing a quantity of a bulk a solidifying amorphous alloy at a temperature above the melting temperature of the bulk solidifying amorphous alloy;

stabilizing the bulk solidifying amorphous alloy at a casting temperature such that the bulk solidifying amorphous alloy is in a viscosity regime of about 0.1 to 10,000 poise;

10 introducing the heated bulk solidifying amorphous alloy onto a moving casting body such that a continuous sheet of heated bulk solidifying amorphous alloy is formed thereon; and

quenching the heated bulk solidifying amorphous alloy at a quenching rate sufficiently fast such that the bulk solidifying amorphous alloy remains in a substantially amorphous phase to form a solid amorphous continuous sheet.

15 2. The method of claim 1, wherein the viscosity of the bulk solidifying amorphous alloy at the "melting temperature" Tm of the bulk solidifying amorphous alloy is from about 0.1 to 10,000 poise.

20 3. The method of claim 1, wherein the viscosity of the bulk solidifying amorphous alloy at the "melting temperature" Tm of the bulk solidifying amorphous alloy is from about 1 to 1000 poise.

4. The method of claim 1, wherein the critical cooling rate of the bulk solidifying amorphous alloy is less than 1,000 °C/sec.

5. The method of claim 1, wherein the critical cooling rate of the bulk solidifying amorphous alloy is less than 10 °C/sec.

25 6. The method of claim 1, wherein the quenching occurs on the casting body.

7. The method of claim 1, wherein the casting body is selected from the group consisting of a wheel, a belt, double-roll wheels.

8. The method of claim 1, wherein the casting body is formed from a material having a high thermal conductivity.

9. The method of claim 1, wherein the casting body is formed of a material selected from the group consisting of copper, chromium copper, beryllium copper, dispersion hardening alloys, and oxygen-free copper.
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10. The method of claim 1, wherein the casting body is at least one of either highly polished or chrome-plated.

11. The method of claim 1, wherein the casting body moves at a rate of 0.5 to 10 cm/sec.

10 12. The method of claim 1, wherein the casting temperature is stabilized in a viscosity regime of 1 to 1,000 poise.

13. The method of claim 1, wherein the casting temperature is stabilized in a viscosity regime of 10 to 100 poise.

14. The method of claim 1, wherein the solid amorphous alloy sheet has a
15 thickness of 0.1 to 10 mm.

15. The method of claim 1, wherein the solid amorphous alloy sheet has a thickness of 0.5 to 3 mm.

16. The method of claim 1, wherein the heated alloy is introduced onto the casting body under pressure.

20 17. The method of claim 1, wherein the bulk solidifying amorphous alloy can be described as $(\text{Zr}, \text{Ti})_a(\text{Ni}, \text{Cu}, \text{Fe})_b(\text{Be}, \text{Al}, \text{Si}, \text{B})_c$, where a is in the range of from 30 to 75, b is in the range of from 5 to 60, and c in the range of from 0 to 50 in atomic percentages.

25 18. The method of claim 17, wherein the bulk solidifying amorphous alloy further comprises up to 20 % atomic of at least one additional transition metal selected from the group consisting of Hf, Ta, Mo, Nb, Cr, V, Co.

19. The method of claim 1, wherein the bulk solidifying amorphous alloy ferrous metal based.

20. The method of claim 1, wherein the bulk solidifying amorphous alloy further comprises ductile crystalline phase precipitates.